Zero and first layer Weissenberg photographs along *b* axis were taken and the systematic extinctions were observed. These are as follows :

hkl	no condition
*h*0*l*	$h+l = 2n$ absent
0*k*0	$k = 2n+1$ absent

The above conditions assign the space group as $P2_1/n$.

The density as determined by floatation method by using a mixture of bromoform and benzene, is $\rho = 1.91$ gm cm^{-3}.

The density calculated by considering eight molecules per unit cell is $\rho = 1.95$ gm cm^{-3}.

Further work on the determination of the complete structure of the crystal is in progress.

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X-RAY STUDY OF THE MONOCLINIC MODIFICATION OF PARA ACETOTOLUIDIDE CRYSTALS

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Acetyl-para-Toluidin i.e. Para Acetotoluidide ($CH_3C_6H_4CONHCH_3$) crystallises in two modifications Beilstein – one stable as platy monoclinic crystals and another metastable as rhombic needle like crystals respectively on slower and

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quicker evaporation from its saturated solution in alcohol at room temperature. The melting point is however the same for both the modifications.

The appearance of the two modifications of crystals which are obtained from the alcoholic solution of the substance at room temperature and have the same melting point but belong to two different crystal systems is rather uncommon. The explanation is presumably to be sought in the internal disposition of the atoms of the molecules in the unit cells of the crystals. With this end in view an X-ray study of the stable modification was undertaken.

The six sided platy flake crystals were examined with the help of a Fuess Horizontal Circle goniometer. The interfacial angles measured were found to be the same as those recorded in Groth (1917). Oscillation and Weissenberg photographs of these crystals along [010] and [001] using CvK radiation gave the following unit cell parameters :

$$a = 11.690\text{Å} \quad b = 9.689\text{Å} \quad c = 7.599\text{Å} \quad \beta = 106.0^{\circ}$$

The axial ratio thus calculated as 1.2069 : 1 : 0.7841 is in good agreement with that of 1.2176 : 1 : 0.7868 given by Groth (1917).

The normal beam zero, 1st. and 2nd. layer Weissenberg photographs along b and c axes gave the following conditions limiting possible reflections :

hkl : no condition,

hol : ($l = 2n$),

oko : no condition

The crystals are thus assigned to the space-group C_2^4P2/c . The density as obtained by flotation method in a solution of $ZnSO_4$ in water was found to be 1.19 gm/c.c. The calculated density for four molecules per unit cell is 1.21 gm/c.c. Further work is in progress.

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